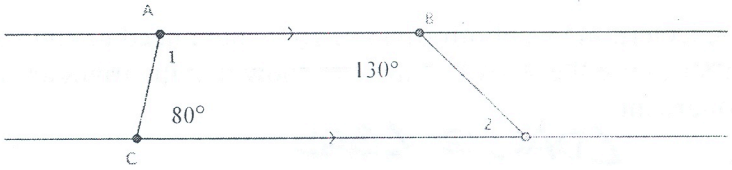
Match each definition with the correct term.

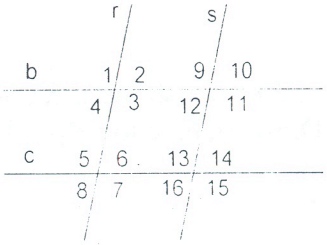
1 G	Acute Angle	A	Two lines that are not coplanar and do not intersect
2 C	Obtuse Angle	B	Ray or segment that splits an angle into two equal halves
3 L	Adjacent Angles	C	An angle greater than 90° and less than 180°
4 I	Linear Pair	D	A triangle with (at least) two equal sides.
5 M	Complementary Angles	E	A pair of non-adjacent angles formed by the intersection of two straight lines. These angles are always congruent.
6 E	Vertical Angles	F	A set of points, lines, line segments, rays or any other geometrical shapes that lie on the same plane
7 J	Supplementary Angles	G	An angle greater than 0° and less than 90°
8 B	Angle Bisector	H	3 or more points on the same line
9 D	Isosceles Triangle	I	Two angles that are adjacent and supplementary
10 K	Obtuse Triangle	J	Two angles whose sum is 180
11 A	Skew Lines	K	Triangle with one obtuse angle.
12 F	Coplanar	L	Two angles that share a common side and vertex and no common interior points
13 H	Collinear	M	Two angles whose sum is 90

23. In the diagram to the right, find $m\angle 1$ and $m\angle 2$.

100 50



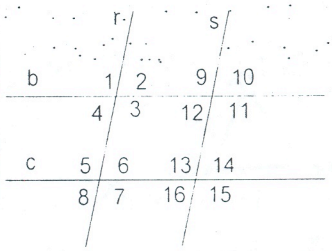
Use the diagram to answer questions 24



24. If $r \parallel s$, $\angle 3$ then is congruent to 1, 9, 11.

25. If $\angle 8 \cong \angle 16$, then r // s.

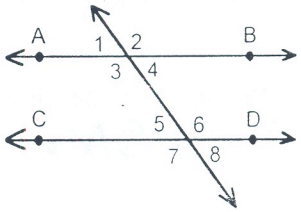
Use the diagram to answer questions 26-27



26. If $b \parallel c$, then $\angle 4$ must be supp. to $\angle 5$

27. If $c \parallel b$, then $\angle 2$ is congruent to 4, 6, 8.

28. Find x if $\overline{AB} \parallel \overline{CD}$, $m\angle 7 = (5x+60)°$, and $m\angle 1 = 70°$.



5x+60+70 = 180

5x = 50

x = 10

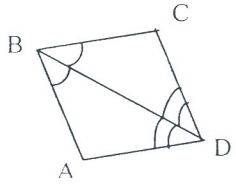
29. What are the measures of the angles in an equilateral triangle? 60°

30. If two angles of a triangle have measures 25° and 75°, what is the measure of the third angle? 80°

31. How many rights angles can any given triangle have? 1

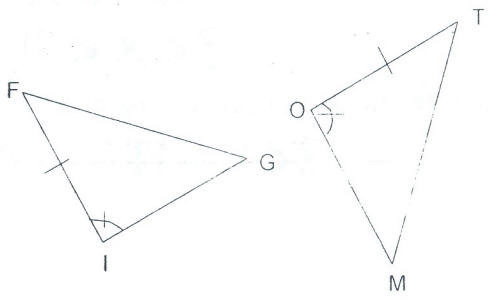
32. Use the markings on the diagram to determine why $\triangle ADB \cong \triangle CDB$.

ASA



41. Name the additional pairs of corresponding parts that need to be congruent in order to prove that $\triangle FIG \cong \triangle TOM$ by ASA.

$\angle F \cong \angle T$

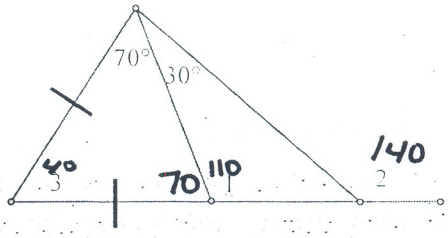


42. The base angles of an isosceles triangle are always congruent.

43. Find $m\angle 2$. 140

44. Find $m\angle 3$ 40

45. Find $m\angle 1$ 110

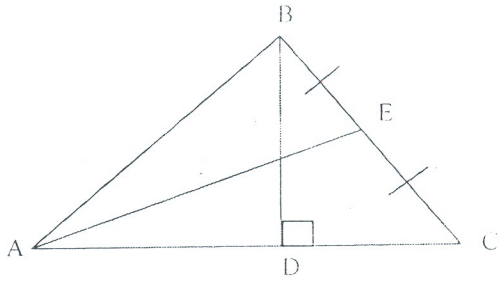


46. Which segment is an altitude of $\triangle ABC$?

$\overline{BD}$

47. Which segment is a median of $\triangle ABC$?

$\overline{AE}$



48. If two sides of a triangle have the following measures, find the range of possible measures for the third side. 4, 8

$4 < x < 12$

Classify the triangles in numbers 67 – 69 as acute, obtuse or right.

55. 6, 7, 8 $6^2+7^2 ? 8^2$ $36+49 ? 64$ $85 > 64$ Acute

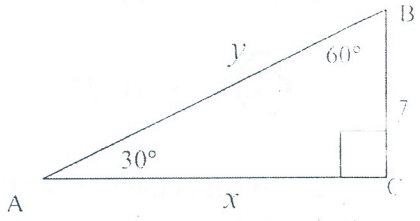
56. 6, 8, 10 $6^2+8^2 ? 10^2$ right

57. 9, 12, 17 $81+144$ $225<289$ obtuse

Find the value of x and y.

58. $x =$ $7\sqrt{3}$

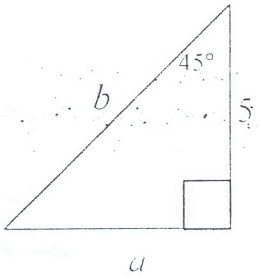
59. $y =$ 14



Find the value of a and b.

60. $a =$ 5

61. $b =$ $5\sqrt{2}$



62. What is the sum of the exterior angles in a convex 12-sided polygon?

360

63. What is the sum of the interior angles of a 12- sided polygon?

$(12-2)180$

1800°

64. What is the measure of each angle of a regular 8-sided polygon?

$\frac{(n-2)180}{n}$ $\frac{6(180)}{8}$

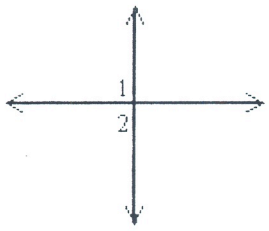
135

Name: _____ Class: _____ Date: _____ ID: A

Geometry Midterm Review 12-13

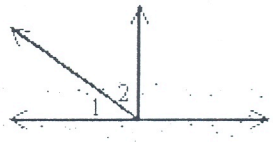
Use the terms adjacent angles, linear pair, or neither to describe angles 1 and 2 in as many ways as possible.

69.



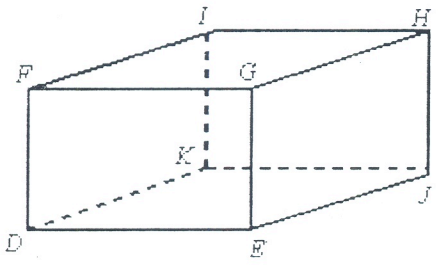
Adj ang. Lin pair

70.



adjacent angles

Use the figure below to answer the following.



71. Name a pair of segments in the rectangular prism that are *intersecting*.
   a. $\overline{FG}, \overline{GE}$
   b. $\overline{GE}, \overline{HJ}$
   c. $\overline{GE}, \overline{KJ}$
   d. $\overline{FG}, \overline{DE}$

72. Name a pair of segments in the rectangular prism that are *parallel*.
   a. $\overline{FI}, \overline{HJ}$
   b. $\overline{FI}, \overline{DK}$
   c. $\overline{FD}, \overline{DK}$
   d. $\overline{FD}, \overline{FI}$

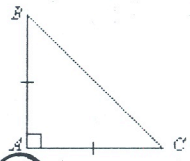
73. Name a pair of segments in the rectangular prism that are *skew*.
   a. $\overline{DK}, \overline{IK}$
   b. $\overline{DK}, \overline{FI}$
   c. $\overline{HJ}, \overline{GE}$
   d. $\overline{HJ}, \overline{DK}$

Classify the triangle by its angles and by its sides.

74.

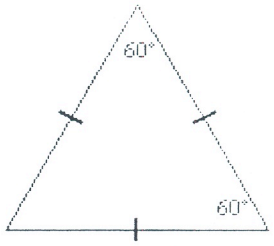
   a. obtuse, scalene
   b. acute, scalene
   c. obtuse, equilateral
   d. obtuse, isosceles

75.



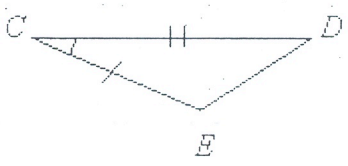
   a. right, isosceles
   b. right, scalene
   c. acute, isosceles
   d. obtuse, isosceles

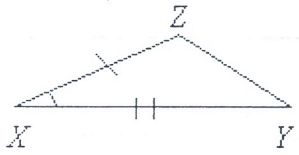
76.



   a. acute, scalene
   b. obtuse, scalene
   c. acute, equilateral
   d. obtuse, equilateral

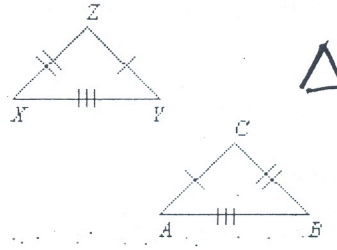
83.





a. $\Delta ECD \cong \Delta ZXY$; SSS
b. $\Delta DEC \cong \Delta ZXY$; SAS
c. $\Delta XZY \cong \Delta ECD$; SSS
d. $\Delta ECD \cong \Delta ZXY$; SAS

84.



$\Delta ZYX \cong \Delta CAB$

Write a congruence statement for the pair of triangles.

85. In ΔHKJ and ΔHIJ, $\angle HJI \cong \angle HJK$, $\angle JHI \cong \angle JHK$, and $\overline{HJ} \cong \overline{HJ}$.

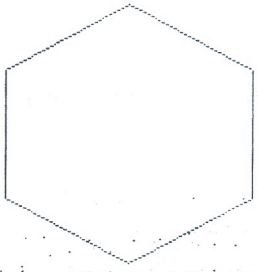
a. $\Delta KJI \cong \Delta KIH$
b. $\Delta HJK \cong \Delta HJI$
c. $\Delta JHK \cong \Delta HIJ$
d. $\Delta KJH \cong \Delta HJI$

Identify the polygon by its sides. Then determine whether it appears to be regular or not regular. If not regular, explain why.

86.

Quadrilateral
not reg
angles ≠
sides ≠

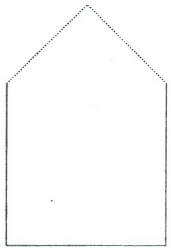
87.



hexagon
regular

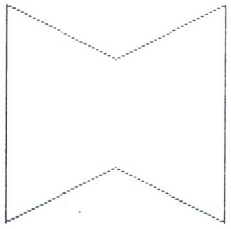
Classify the polygon as convex or concave.

88.



Convex

89.



Concave

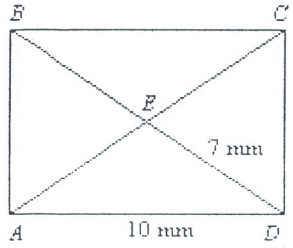
90. The measures of six interior angles of a heptagon are 111, 110, 121, 135, 139, and 92. Find the measure of the seventh interior angle.

900 − 708 = 192

(7−2)180 = 900

Name: _____ ID: A

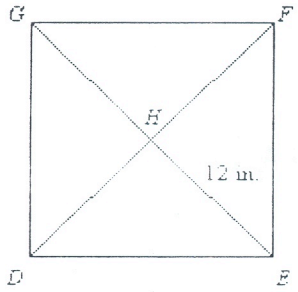
Use rectangle ABCD to find the following:



101. the measure of $\overline{BC}$
   a. 3 mm
   b. 10 mm
   c. 14 mm
   d. 7 mm

102. $m\angle ABC$
   a. 10
   b. 90
   c. 45
   d. 70

Use square DEFG to find the following.

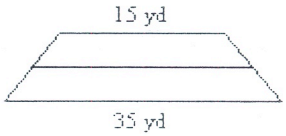


103. the measure of $\overline{GH}$
   a. 12 in.
   b. 10 in.
   c. 2 in.
   d. 24 in.

104. the measure of $\overline{DF}$
   a. 12 in.
   b. 4 in.
   c. 2 in.
   d. 24 in.

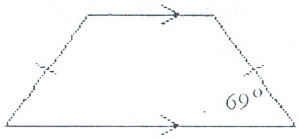
Find the length of the median in the trapezoid.

105.



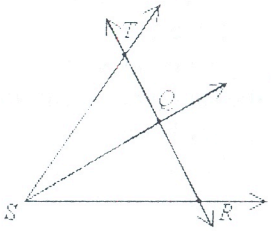
   a. 10 yd
   b. 20 yd
   c. 25 yd
   d. 50 yd

106. Find the missing angle measures in the isosceles trapezoid. Compute the angles clockwise from the given angle.



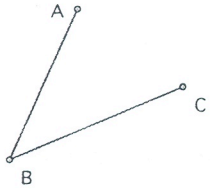
   a. 21, 69, 21
   b. 111, 111, 69
   c. 69, 111, 111
   d. 21, 21, 111

107. Name three points that are collinear.



   a. points T, Q, and R
   b. points T, Q, and S
   c. points S, Q, and R
   d. points T, S, and R

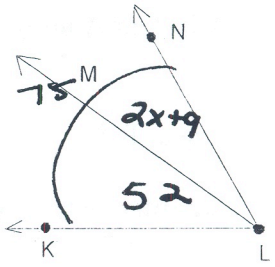
14 . Name this angle in 3 different ways.



∠ABC
∠CBA
∠B

15. Find $m\angle NLM$ ~~and $m\angle KLM$~~, if $m\angle NLM = (2x+9)°$, $m\angle KLM = 52°$ and $m\angle NLK = 75°$.

mNLM = 23°



16. What is the vertex of $\angle DEF$? ∠E

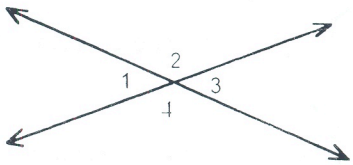
17. What is the complement of 50° angle? 40°

18. What is the supplement of 50° angle? 130°

Questions 19 and 20 refer to the diagram to the right.

19. If $m\angle 2 = 110°$ and $m\angle 4 = (5x + 30)°$, then the value of x is 16.

110 = 5x + 30
80 = 5x
16 = x

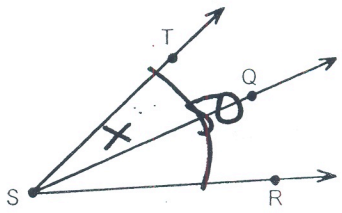


20. If $m\angle 1 = 60°$ and $m\angle 2 = (3x + 15)°$, then the value of x is 35.

60 + 3x + 15 = 180
3x = 105
x = 35

21. $\overline{SQ}$ bisects $\angle RST$. Find the measure of $\angle QST$ if $m\angle RST = 50°$.

∠QST = 25°



Write

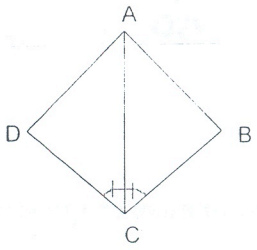
22. ~~Which one of the following is~~ the converse of: "If two segments have the same measure, then they are congruent."

IF two segments are congruent, then they have the same measure

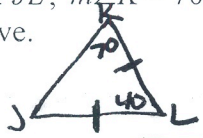
33. If $\triangle PQR \cong \triangle DBF$ (not shown), then $\overline{BD} \cong \overline{QP}$.

34. Determine what information you would need to know in order to use the ASA Postulate to show that the triangles are congruent.

$\angle DAC \cong \angle BAC$



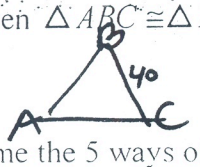
35. In $\triangle JKL$ (not shown), $\overline{KL} \cong \overline{JL}$, $m\angle K = 70$, $m\angle L = 40$. Find $m\angle J$.
Hint – Draw triangle to help solve.

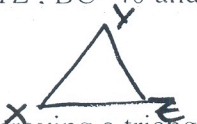


70°

36. If $\triangle ABC \cong \triangle DEF$, then you can say $\overline{AB} \cong \overline{DE}$ because CPCTC

37. Given $\triangle ABC \cong \triangle XYZ$. BC=40 and ~~XY~~ YZ=5x+10, find the value of x.





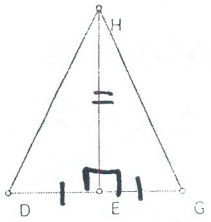
X=6

38. Name the 5 ways of proving a triangle congruent.

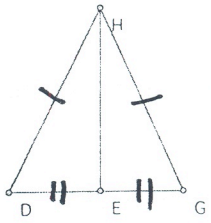
ASA SSS AAS SAS HL

For questions 39-41, state which of the postulates or theorems could be used to justify the conclusion.

39. If $\overline{HE} \perp \overline{DG}$ and E is the midpoint of $\overline{DG}$, then $\triangle DHE \cong \triangle GHE$ by SAS.



40. If $\overline{HG} = \overline{HD}$ and $\overline{DE} = \overline{EG}$, then $\triangle DHE \cong \triangle GHE$ by SSS.



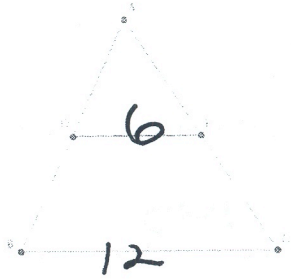
49. Determine if the three numbers can be measures of the sides of a triangle. 4, 7, 8?

$3 < x < 11$ Yes

50. Determine if the three numbers can be measures of the sides of a triangle. 8, 11, 22?

$3 < x < 19$ No

51. If D is the midpoint of $\overline{AB}$ and E is the midpoint of $\overline{AC}$ find the length of $\overline{DE}$. $\overline{BC} = 12$.



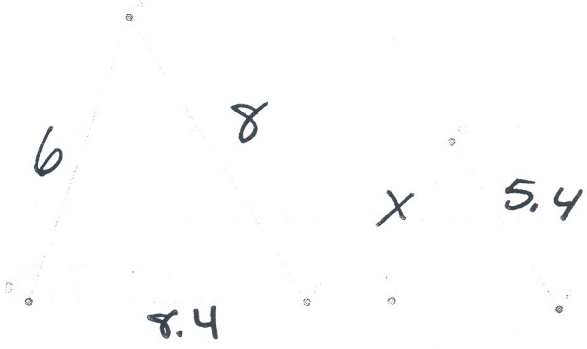
52. If $\frac{6+x}{x} = \frac{8}{2}$, then what is the value of x?

$12 + 2x = 8x$

$12 = 6x$

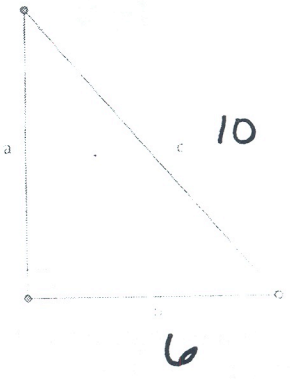
$2 = x$

53. $\triangle ABC \sim \triangle DEF$, if $\overline{AB} = 6$, $\overline{AC} = 8$, $\overline{BC} = 8.4$, and $\overline{DF} = 5.4$, what is the measure of $\overline{DE}$.



54. If b = 6 and c = 10, what is the length of a?

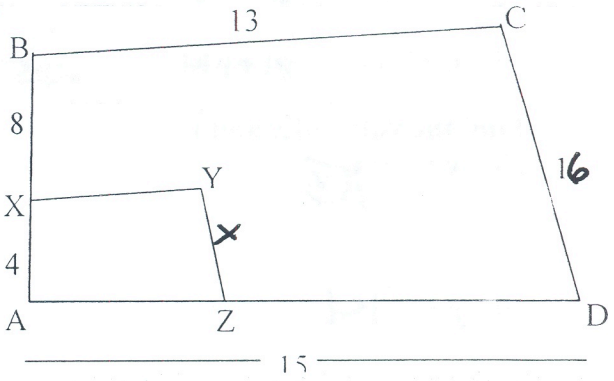
$a = 8$



Use the diagram for problems 65-68.

65. What is the scale factor of AXYZ to ABCD? (1.3.1.2)

A. 2:3 B. 5:2 C. 1:3 D. 4:16



• 66. Find YZ. (1.3.1.2)

$\frac{4}{12}=\frac{x}{16}$

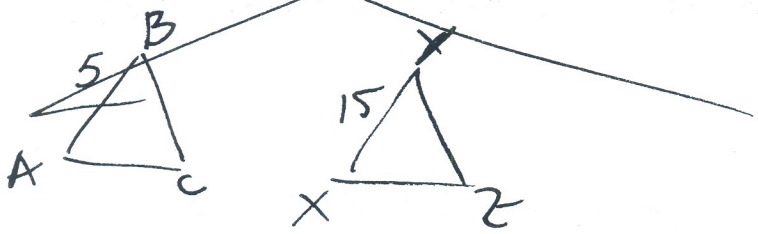
A. 5 1/3 B. 32 C. 8 D. $12x=64$

$x=$

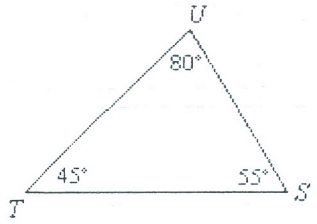
• 67. What is the ratio of their perimeters? (1.3.1.2)

A. 2:3 B. 1:3 C. 4:26 D. 4:9

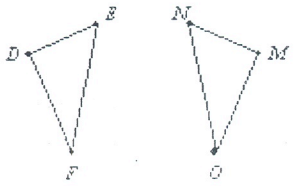
68. ABC ~ XYZ. AB = 5 inches and XY = 15 inches. If the perimeter of XYZ is 48 inches, then what is the perimeter of ABC? (1.3.1.1)



• 77.



78. If $\Delta DEF \cong \Delta MNO$, name the congruent angles and sides.



a. $\angle D \cong \angle M$, $\angle E \cong \angle N$, $\angle F \cong \angle O$, $\overline{DE} \cong \overline{MN}$, $\overline{EF} \cong \overline{NO}$, $\overline{FD} \cong \overline{OM}$

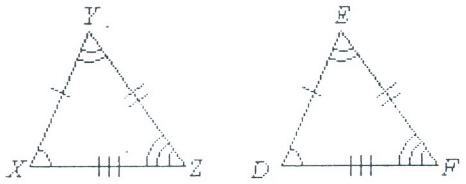
b. $\angle D \cong \angle N$, $\angle E \cong \angle M$, $\angle F \cong \angle O$, $\overline{DE} \cong \overline{MN}$, $\overline{EF} \cong \overline{NO}$, $\overline{FD} \cong \overline{OM}$

c. $\angle D \cong \angle M$, $\angle E \cong \angle N$, $\angle F \cong \angle O$, $\overline{DE} \cong \overline{MO}$, $\overline{EF} \cong \overline{NO}$, $\overline{FD} \cong \overline{MN}$

d. $\angle D \cong \angle M$, $\angle E \cong \angle O$, $\angle F \cong \angle N$, $\overline{DE} \cong \overline{MN}$, $\overline{DE} \cong \overline{NO}$, $\overline{FD} \cong \overline{OM}$

Complete the congruence statement.

79.



Δ ___?___ $\cong \Delta FDE$

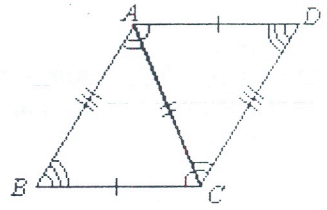
a. XYZ

b. YZX

c. ZXY

d. ZYX

80.



$\Delta BCA \cong \Delta$ ___?___

a. ACD

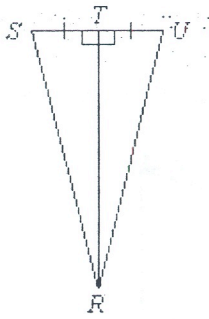
b. DAC

c. CDA

d. CAD

Determine whether the pair of triangles is congruent. If so, write a congruence statement and explain why the triangles are congruent.

81.



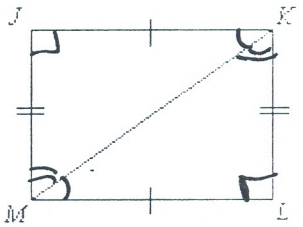
a. $\Delta URT \cong \Delta STR$; SSS

b. $\Delta STR \cong \Delta UTR$; SAS

c. $\Delta TRU \cong \Delta STR$; SSS

d. $\Delta RST \cong \Delta UTR$; SAS

82.



a. $\Delta KMJ \cong \Delta MLK$; SSS

b. $\Delta MKL \cong \Delta MJK$; SSS

c. $\Delta MKL \cong \Delta MJK$; SAS

d. $\Delta KLM \cong \Delta MJK$; SSS

Name: _____ ID: A

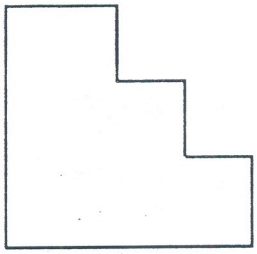
Find the measure of one interior angle and one exterior angle of the given polygon. If necessary, round to the nearest degree.

91. a regular hexagon $\frac{360}{6}$ $\frac{(6-2)180}{6}$

ext 60 int 120

Identify the polygon by its sides. Then determine whether it appears to be regular or not regular. If not regular, explain why.

92.



a. heptagon, not regular; All angles and all sides are not congruent.
b. heptagon, regular
c. octagon, not regular; All angles and all sides are not congruent.
d. octagon, regular

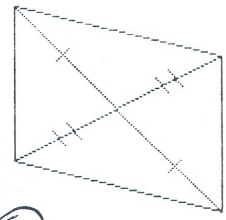
Find the sum of the measures of the interior angles in the figure.

93.

a. 180
b. 540
c. 360
d. 720

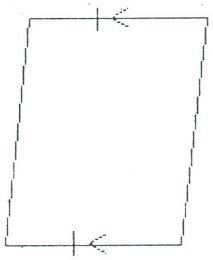
Determine whether the quadrilateral is a parallelogram. If yes, give a reason for your answer.

94.



a. yes; If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.
b. yes; If the diagonals of a quadrilateral intersect, then the quadrilateral is a parallelogram.
c. yes; If a quadrilateral has two diagonals, then the quadrilateral is a parallelogram.
d. no

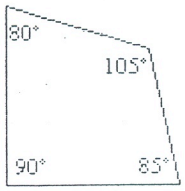
95.



a. yes; If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.
b. yes; If the opposite angles of a quadrilateral are congruent, then the quadrilateral is a parallelogram.
c. yes; If one pair of opposite sides of a quadrilateral is parallel and congruent, then the quadrilateral is a parallelogram.
d. no

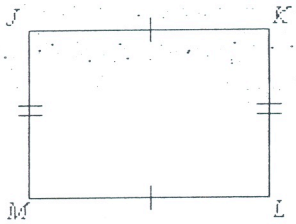
Name: _____ ID: A

96.



a. yes; If the opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram.
b. yes; If opposite angles of a quadrilateral are congruent, then the quadrilateral is a parallelogram.
c. yes; If the consecutive angles of a quadrilateral are supplementary, then the quadrilateral is a parallelogram.
d. no

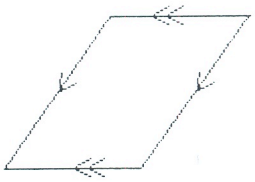
97.



a. yes; If both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram.
b. yes; If one pair of opposite sides of a quadrilateral is parallel and congruent, then the quadrilateral is a parallelogram.
c. yes; If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.
d. no

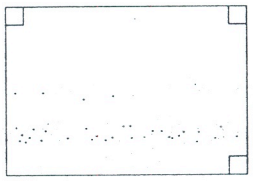
Identify the parallelogram.

98.



a. square
b. rhombus
c. rectangle
d. none of these

99.



a. rhombus
b. square
c. rectangle
d. none of these

*100. the measure of $\overline{BD}$ Next page

a. 17 mm
b. 10 mm
c. 14 mm
d. 20 mm